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Using a narrative to spark safer sex communication

Donné, Lennie; Hoeks, Jacobus; Jansen, C. J. M.

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Lennie Donné^{a,b}, John Hoeks^a and Carel Jansen^{a,c}

^aCenter for Language and Cognition, University of Groningen, Groningen, The Netherlands

^bHU University of Applied Sciences Utrecht, Utrecht, The Netherlands

^cLanguage Centre, Stellenbosch University, Stellenbosch, South Africa

Abstract

Objective: College students are a group at risk for contracting sexually transmitted infections (STIs). While they are generally well informed about STIs, they do not consistently use condoms. An important element in preventing STIs is safer sex communication, especially with a sexual partner. This may be difficult, however, because of a lack of experience in talking about safer sex or because of the absence of suitable role models. In this study, a narrative intervention was tested that was developed to provide receivers with a social script for safer sex communication.

Design: An experiment was conducted among college students ($N=225$) who were exposed to either a narrative intervention or a non-narrative (brochure) intervention, followed by a post-test questionnaire. In the narrative condition, part of the participants completed a pre-test questionnaire before being exposed to the intervention.

Results: Compared to pre-test scores, the narrative positively influenced safer sex communication intentions. The results show no significant differences between post-test scores of the narrative and the non-narrative condition. Mediation analyses showed that narrative processes (identification and transportation) were positively related to safer sex communication.

Conclusion: In this study, we investigated both the effects of a narrative intervention on safer sex communication intentions, and the mechanisms of narrative processing underlying these effects. The narrative turned out to be as effective as a brochure version with the same information. Our mediation analyses suggest that narratives can be made more persuasive by increasing the reader's involvement with the story as a whole, and with one of the characters in particular.

Keywords

College students, narrative, safer sex, safer sex communication, social script

Corresponding author:

Lennie Donné, Center for Language and Cognition, University of Groningen, PO Box 716, 9700 AS Groningen, The Netherlands.

Email: L.Donne@rug.nl

Introduction

Sexually transmitted infections (STIs), such as Chlamydia or gonorrhoea, constitute a growing health challenge in the Netherlands. The number of people that have been diagnosed with one or more STIs has increased in 2015 compared to 2014 (National Institute for Public Health and the Environment, 2016). In particular, college students constitute a group at high risk of STIs. They are sexually active, sometimes with multiple sexual partners in the same time period; they may have a sense of personal invulnerability towards infections such as HIV; and they may use alcohols and drugs in ways that increase the chance of risky sexual behaviour (Cline et al., 1992; Fromme et al., 2008; Wright et al., 2012). Even though college students are generally well informed about STIs, they do not consistently use condoms (Noar et al., 2004; Troth and Peterson, 2000; Wright et al., 2012).

In order to reduce health risks, safer sex communication is of vital importance. Safer sex communication comprises communication about various safer sex topics, such as STIs and birth control (Cleary et al., 2002). Meta-analyses indicate that safer sex communication with a sexual partner is an important and robust predictor of condom use (Noar et al., 2006; Widman et al., 2014). Safer sex communication can also occur between friends, and for college students, friends are an important source of sex-related information (Lefkowitz et al., 2004). Young adults have been shown to learn more about sex from interaction with peers, both with their romantic partners and with their friends, than from other sources of information. This interaction with peers is also associated with less risky sexual behaviour (Mastro and Zimmer-Gembeck, 2015). Furthermore, when young adults watch safer sex Public Service Announcements (PSAs), they often do so in the presence of their friends, which may spark discussions about the PSAs (Helme et al., 2011). In this article, we therefore focus on safer sex communication between both sexual partners and between friends.

The difficulties of safer sex communication

Even though the potential benefits of safer sex communication are clear, actually participating in these conversations about safer sex may sometimes be difficult. For instance, because safer sex is seen as a taboo topic, safer sex communication may cause damage to an individual's sense of self or to the image they want to maintain in public (Brown and Levinson, 1987; Moyer-Gusé et al., 2011). Avoiding taboo topics in conversations may be considered an unspoken relational norm (Allen et al., 2002). Safer sex communication may also lead to relationship damage for college students, as it can be interpreted as a lack of trust in the partner, or as a sign that the person who brought up the topic himself or herself has previously engaged in unsafe sexual behaviour (Cleary et al., 2002; Troth and Peterson, 2000). Furthermore, the need to feel a certain amount of spontaneity in the sexual act may be a barrier to successful planning of risk-minimising sexual behaviour (Allen et al., 2002). In addition, college students may not talk about safer sex issues because they do not believe they are at risk for acquiring an STI (Hickey and Cleland, 2013; Troth and Peterson, 2000).

Even when a positive attitude towards safer sex communication is formed, college students may lack experience and reliable role models for effective safer sex communication (Faulkner and Lannutti, 2010) because it is generally done in private (Noar et al., 2006). In other words, college students may not master a social script for safer sex communication (Moyer-Gusé et al., 2011). Helme et al. (2011) found that depicting realistic safer sex interactions in a safer sex PSA can act as a catalyst for initiating safer sex communication. Several studies have concluded that STI prevention efforts and research should focus on developing strategies and skills concerning safer sex communication (Allen et al., 2002; Cline et al., 1992; Noar et al., 2006; Widman et al., 2014).

Narrative processes sparking safer sex communication

In the present study, we tested whether using a *narrative* message format may be effective in influencing college students' safer sex communication intentions. A narrative message consists of a story with an identifiable beginning, middle and end, and comprises information about the scene and characters (Moyer-Gusé and Nabi, 2010). A unique aspect of narratives is that they facilitate identification, or involvement with characters (Moyer-Gusé, 2008). Identification refers to the viewer taking on the perspective of a character, and vicariously experiencing the emotions and goals of that character (Cohen, 2001). Another key concept of narrative persuasion is transportation, a process whereby one is completely swept up into the narrative because all mental capacities focus on what occurs within it (Green and Brock, 2000). There are several ways in which identification and transportation may influence safer sex communication intentions.

Identification with a character successfully engaging in safer sex discussions can enhance the viewers' self-efficacy, or their confidence in being able to perform the behaviour (Moyer-Gusé et al., 2011). Furthermore, according to the Entertainment Overcoming Resistance Model (EORM; Moyer-Gusé, 2008), identification with a character who is vulnerable to a certain threat (like contracting an STI) may increase personal feelings of vulnerability towards that threat. Finally, transportation and identification with efficacious characters in the narrative may reduce the probability of counterarguing. Counterarguing is a form of resistance against a persuasive message consisting of generating thoughts that are in conflict with the message (Slater and Rouner, 2002). The loss of awareness that is associated with transportation and identification (Slater and Rouner, 2002) may decrease the motivation to generate counterarguments against the persuasive message (Moyer-Gusé et al., 2008, 2011). Increased self-efficacy and perceived vulnerability and decreased counterarguing, in turn, should increase story-consistent attitudes and behaviours (Moyer-Gusé, 2008).

Empirical research has found a relationship between narrative messages on sexuality-related beliefs and behavioural outcomes. Collins et al. (2003) found that young people who viewed an episode of the comedy TV show *Friends* that featured dialogue on unplanned pregnancy were better able to recall condom effectiveness rates than young people who had not seen this episode. Kennedy et al. (2004) found that incorporating an HIV storyline in a drama TV show motivated viewers to call the National STD and AIDS hotline. Specifically focusing on safer sex communication between college students, Moyer-Gusé et al. (2011) found that exposure to a narrative, in this case an episode of the popular TV series *Sex and the City* including safer sex communication between characters, led to more safer sex communication over the 2 weeks following the intervention. As they had hypothesised, this effect was larger when identification with the main characters was higher.

Even though narrative message formats are increasingly used in health contexts, and the above-mentioned studies on the effectiveness of narrative interventions show some promising results, there are still gaps in the knowledge about narrative effectiveness. For one thing, not all research has shown effects of narratives on health-related outcomes (De Graaf et al., 2016). Furthermore, the theoretically posited underlying mechanisms of narrative impact have not been extensively tested (Moyer-Gusé et al., 2011). The goal of the present study was therefore to investigate both the effects of using a narrative message format in the context of safer sex communication among college students, and the mechanisms of narrative processing underlying these effects. We therefore (1) investigated the effects of one narrative intervention in a pre-test–post-test design, (2) compared the effects of this narrative with the effects of a non-narrative intervention and (3) investigated the total, direct, and indirect effects of identification and transportation on safer sex communication intentions.

The present study

The first goal of the present study was to determine whether presenting information on safer sex communication in a narrative format is beneficial for influencing college students' safer sex communication intentions. This resulted in the following research question:

RQ. What are the effects of a narrative intervention on the intentions to discuss safer sex with a partner and with friends?

The second goal of the present study was to find out more about the mechanisms underlying the effects of narrative messages processing. Based on the E-ELM (Slater and Rouner, 2002), the EORM (Moyer-Gusé, 2008) and the results of Moyer-Gusé et al. (2011), we formulated the following hypotheses:

H1. The level of identification with one of the characters in the narrative predicts intentions to discuss safer sex with a partner (H1a). This relationship is mediated by self-efficacy (H1b), perceived vulnerability (H1c) and counterarguing (H1d).

H2. The level of identification with one of the characters in the narrative predicts intentions to discuss safer sex with friends (H2a). This relationship is mediated by self-efficacy (H2b), perceived vulnerability (H2c) and counterarguing (H2d).

H3. The level of transportation into the narrative predicts intentions to discuss safer sex with a partner (H3a). This relationship is mediated by self-efficacy (H3b), perceived vulnerability (H3c) and counterarguing (H3d).

H4. The level of transportation into the narrative predicts intentions to discuss safer sex with friends (H4a). This relationship is mediated by self-efficacy (H4b), perceived vulnerability (H4c) and counterarguing (H4d).

Method

We created a narrative message aimed at providing college students with a social script for talking about safer sex both with a sexual partner and with friends. We were interested in the effects and operation of the narrative intervention compared to (1) pre-test scores, that is, baseline measures without message exposure and (2) a non-narrative intervention, that is, a non-vivid, informative stimulus. The pre-test narrative condition was furthermore added for a methodological reason: we wanted to find out whether including a pre-test would influence post-test scores.¹ Data were collected in accordance with a protocol approved by the institutional ethical committee of the Faculty of Arts of the University of Groningen in the Netherlands.

Participants

The target group of this study consisted of college students between 18 and 26 years old. A total of 225 college students (72% women; mean age: 20.7 years; standard deviation [*SD*] = 1.7 years) took part in this experiment. Participants did not receive any compensation, financial or otherwise, for their participation in the experiment.

Stimulus materials

Two different types of messages were constructed: a narrative and a non-narrative. The narrative consisted of a 2-minute video of two male students sitting on the couch of their student flat, drinking

Table 1. Study design.

	Pre-test	Stimulus	Post-test
Condition A	Yes	Narrative	Yes
Condition B	No	Narrative	Yes
Condition C	No	Non-narrative	Yes

beer and talking – through text balloons – about their experiences with safer sex communication with sexual partners. A mutual friend had been infected with Chlamydia because he did not use a condom, which illustrates the possible consequences of failing to discuss this topic. Each student subsequently shares a recent anecdote in which the topic of safer sex (i.e. condom use) was discussed in a sexual encounter with a female student. Both anecdotes are visually depicted into the video as a ‘flashback’. In both anecdotes, talking about condoms leads to actual condom use without any problems. By using the format of a frame story, where the two students talk to each other about safer sex in a casual conversation in combination with depicting negotiations about condom use in the two anecdotes, our narrative addressed both safer sex communication with friends and with a sexual partner.

The non-narrative message consisted of an informative brochure in which the importance of bringing up condom use with a sexual partner was emphasised. Care was taken that the content of the information in the brochure about safer sex communication was the same as the content of the information in the video.²

Procedure

The experiment was conducted at seminars of two different first and second year courses within the Faculty of Arts of the University of Groningen. In these seminars, participants worked in groups, which were randomly assigned to one of the three conditions. Table 1 depicts the study design. In condition A and condition B (the two narrative conditions), participants watched the video as a group and individually filled out a post-test questionnaire afterwards. In condition A, watching the video was preceded by the pre-test questionnaire in the same session. In condition C (the non-narrative condition), the participants read the informative brochure and individually filled out a post-test questionnaire afterwards.

Measures

Safer sex communication behaviour and intentions (pre-test and post-test). Safer sex communication behaviour with a sexual partner and with friends was measured using 7-point items: ‘I talk with a sexual partner (friends) about using condoms (safer sex)’ (1=never, 7=always). The safer sex communication intentions with a sexual partner and with friends were measured using 7-point Likert items (Cronbach’s $\alpha=.97$; $r=.93$ for sexual partner and Cronbach’s $\alpha=.97$; $r=.94$ for friends): ‘I plan on talking with a sexual partner (friends) about using condoms (safer sex)’ and ‘I will talk with a sexual partner (friends) about using condoms (safer sex)’ (1=I completely disagree, 7=I completely agree) (adapted from Moyer-Gusé et al., 2011).

Self-efficacy (pre-test and post-test). Self-efficacy for bringing up condom use with a sexual partner was measured by a 7-point Likert item: ‘I am capable of bringing up condom use with a sexual partner’. Self-efficacy for bringing up safer sex with friends was measured by a 7-point Likert item:

'I am capable of bringing up safer sex with friends' (1=I completely disagree, 7=I completely agree) (based on Moyer-Gusé et al., 2011).

Perceived vulnerability (pre-test and post-test). In this study, we distinguished between two types of perceived vulnerability: perceived vulnerability for STIs and perceived vulnerability for pregnancy caused by unsafe sex. The perceived vulnerability for contracting an STI after unsafe sex was measured by a 7-point item: 'If you were to have sexual intercourse without a condom regularly, how likely is it that you would contract an STI?' (based on Moyer-Gusé et al., 2011). The perceived vulnerability for unsafe sex causing pregnancy was measured by a 7-point item: 'if you were to have sexual intercourse without a condom regularly, how likely is it that this would lead to pregnancy?' (1 = not at all probable, 7 = very probable) (adapted from Moyer-Gusé et al., 2011).

Identification (post-test condition B only). To measure identification, we first showed participants stills of the four characters of the video, and asking them with whom they identified most when watching the video. They were then asked to fill in the following two items, that measured identification (Cronbach's $\alpha = .86$; $r = .76$), with this character in mind: 'I understand this character', 'I can put myself in this character's shoes' (1=I completely disagree, 7=I completely agree) (based on Cohen, 2001).

Counterarguing (post-test condition B only). Counterarguing was measured with four 7-point Likert items (Cronbach's $\alpha = .61$): 'When watching the video, I was looking for flaws in the information that was presented', 'I agreed with what was said in the video', 'When watching the video, I felt that some information was incorrect' and 'When watching the video, I felt that some information was misleading' (1=I completely disagree, 7=I completely agree) (based on Moyer-Gusé and Nabi, 2010). Because Cronbach's α for these items was insufficient (Cronbach's $\alpha = .61$), only items 3 and 4 are used in the analyses (Cronbach's $\alpha = .81$, $r = .67$).

Transportation (post-test condition B only). Transportation was measured with six 7-point Likert items (Cronbach's $\alpha = .81$): 'My attention was completely absorbed by the video', 'I was mentally involved in the video', 'When watching the video, my thoughts sometimes wandered off', 'The video touched me', 'When watching the video, I forgot everything around me' and 'I was curious about the ending of the video' (1=I completely disagree, 7=I completely agree) (based on Green and Brock, 2000).

Analyses

To begin with, we wanted to find out whether including a pre-test would affect the post-test results. We therefore compared the post-test results of condition A (the narrative condition that included a pre-test) to those of condition B (the narrative condition that did not include a pre-test) by means of an Independent Samples *t*-test. Subsequently, in order to investigate the effect of the narrative intervention compared to pre-test scores, we compared the pre-test scores of condition A to the post-test scores of condition A by means of a paired samples *t*-test. Next, to investigate the effect of the narrative versus the non-narrative intervention, we compared the averaged post-test scores of conditions A and B to the post-test scores of condition C (the post-test-only non-narrative condition). Finally, in order to (1) assess the relationship between identification and transportation on the one hand, and safer sex communication intentions on the other hand, and (2) see whether these relationships were mediated by self-efficacy, counterarguing and perceived vulnerability, we

Table 2. Mean pre-test and post-test scores condition A (SD), and t-test results.

	Mean pre-test score	Mean post-test score	t-test results
SSC int. w. partner	5.16 (1.74)	5.39 (1.67)	$t(70) = -1.97$
SSC int. w. friends	3.42 (1.75)	3.72 (1.76)	$t(71) = -3.01^{**}$
S-E SSC w. partner	6.18 (1.14)	6.21 (1.05)	$t(72) = -.31$
S-E SSC w. friends	5.52 (1.62)	5.51 (1.54)	$t(72) = .12$
PV STI	5.07 (1.58)	5.23 (1.72)	$t(72) = -1.62$
PV pregnancy	4.89 (1.90)	4.93 (1.97)	$t(72) = -.44$

SD: standard deviation; STI: sexually transmitted infection; SSC: safer sex communication; PV: perceived vulnerability.

*Significant at $p < .05$; **significant at $p < .01$.

performed mediation analyses on the data of participants in the narrative conditions (condition A and condition B; $N = 160$). The mediation analyses were performed using the *Process* module for SPSS (Hayes, 2013), using 10,000 bootstrap samples.³

Results

Possible priming effect of pre-test

The results of the *t*-test comparing the post-test results of condition A to the post-test results of condition B showed that the post-test results of condition A and condition B did not differ significantly on safer sex communication intentions with a partner, $t(155) = 1.42$, $p = .16$, and on safer sex communication intentions with friends, $t(157) = .50$, $p = .62$. This indicates that the pre-test did not have a general priming effect on the post-test results. Therefore, in the results discussed in the rest of this article, we combined the post-test results of condition A with the post-test results of condition B into one 'narrative condition'.

Effects of the narrative intervention

Effects of the narrative intervention compared to pre-test scores. The results of the paired samples *t*-test comparing pre-test scores and post-test scores in condition A show that there was a marginally significant difference between pre-test scores and post-test scores safer sex communication intentions with a sexual partner, $t(70) = -1.97$, $p = .053$, and a significant difference between pre-test scores and post-test scores for safer sex communication intentions with friends, $t(71) = -3.01$, $p < .01$. In both cases, the mean post-test scores were higher than the mean pre-test scores, indicating that the narrative intervention had a (small) positive effect on these variables. The mean scores of the pre-test and the post-test of condition A and the *t*-test results can be found in Table 2.

Effects of the narrative intervention versus the non-narrative intervention. The results of the independent samples *t*-test comparing the post-test scores of the non-narrative condition (condition C) to the post-test scores of the narrative condition (condition A and condition B combined) show that participants in the narrative condition did not score significantly different in safer sex communication intentions with a sexual partner and with friends, compared with participants in the non-narrative condition, $t(220) = -.95$, $p = .35$ and $t(143) = -1.20$, $p = .23$, respectively. The mean post-test scores of the narrative condition and the non-narrative condition and the *t*-test results can be found in Table 3.

Table 3. Mean post-test scores narrative (conditions A and B) and non-narrative condition (condition C) (SD), and t-test results.

	Mean post-test condition A and B	Mean post-test condition C	t-test results
SSC int. w. partner	5.17 (1.75)	4.92 (1.77)	$t(220) = -.95$
SSC int. w. friends	3.68 (1.81)	3.40 (1.50)	$t(143) = -1.20$
S-E SSC w. partner	6.14 (1.20)	6.28 (1.05)	$t(222) = .44$
S-E SSC w. friends	5.50 (1.60)	5.37 (1.65)	$t(222) = -.56$
PV STI	5.15 (1.63)	4.92 (1.57)	$t(222) = -.96$
PV pregnancy	4.75 (2.00)	4.48 (1.79)	$t(222) = -.95$

SD: standard deviation; STI: sexually transmitted infection; SSC: safer sex communication; PV: perceived vulnerability.

Table 4. Effect of identification on safer sex communication intentions, both direct and mediated through self-efficacy, counterarguing and perceived vulnerability, expressed in β .

	SSC int. with partner	SSC int. with friends
Total effect ident. on intentions	.25*	.40**
Direct effect ident. on intentions	.17	.29**
Effect mediated through self-efficacy	.04	.09 ^a
Effect mediated through counterarguing	-.01	-.00
Effect mediated through perceived vulnerability to STIs	.01	.03
Effect mediated through perceived vulnerability to pregnancy	.04	-.00

STI: sexually transmitted infection; SSC: safer sex communication.

^aConfidence interval 95% = [.0162, .1770] and does not include zero, so this effect is significant.

*Significant at $p < .05$; **significant at $p < .01$.

Narrative processes^{4,5}

Relationships between identification and safer sex communication intentions. Our narrative portrayed two male students (in the main part of the frame story), as well as two female students (in the two anecdotes that were told by each of the students). Thus, there were four characters, two male and two female, with whom our participants could identify. All of the male participants in the narrative condition indicated they identified most with one of the male characters (mean identification = 4.66; $SD = 1.41$). Of the female participants in the narrative condition, 26% identified most with one of the male characters (mean identification = 5.41, $SD = 1.30$), whereas the remaining 74% identified most with one of the female characters (mean identification = 5.32, $SD = 1.16$). Table 4 shows the relationship between identification and safer sex communication intentions with a sexual partner and with friends, both directly and mediated through self-efficacy, counterarguing and perceived vulnerability.

As can be seen in Table 4, the total effect of identification on the intention to discuss safer sex with a sexual partner was significant. The direct effect of identification on intention was not significant, nor were there indirect effects via self-efficacy, counterarguing and perceived vulnerability for STIs and pregnancy.⁶ Thus, we did not find support for H1.

Table 4 shows that the total effect of identification on the intention to discuss safer sex with friends was significant, as was the direct effect of identification on the intention to discuss safer sex with friends, and the indirect effect via self-efficacy. We did not find indirect effects of

Table 5. Effect of transportation on safer sex communication intentions, both direct and mediated through self-efficacy, counterarguing and perceived vulnerability, expressed in β .

	SSC int. w. partner	SSC int. w. friends
Total effect ident. on intentions	.48**	.28*
Direct effect ident. on intentions	.35**	.28*
Effect mediated through self-efficacy	.02	.02
Effect mediated through counterarguing	-.00	.00
Effect mediated through perceived vulnerability to STIs	.02	.05
Effect mediated through perceived vulnerability to pregnancy	.09 ^a	.01

STI: sexually transmitted infection; SSC: safer sex communication.

^aConfidence interval 95% = [.0118, .2310] and does not include zero, so this effect is significant.

*Significant at $p < .05$; **significant at $p < .01$.

identification on intention via counterarguing or perceived vulnerability for STIs or pregnancy. Thus, we found support for H2a and H2b, and no support for H2c and H2d.

Relationships between transportation and safer sex communication intentions. Table 5 shows the relationship between transportation and safer sex communication intentions with a sexual partner and with friends, both directly and mediated through self-efficacy, counterarguing and perceived vulnerability.

As can be seen in Table 5, the total effect of transportation on the intention to discuss safer sex with a sexual partner was significant, as was the direct effect of transportation on intention, and the indirect effect on intention through perceived vulnerability for unsafe sex causing pregnancy. We did not find indirect effects of transportation on intention via self-efficacy, counterarguing or the perceived vulnerability for unsafe sex causing STIs. Thus, we found support for H3a, partial support for H3c (only for unsafe sex causing pregnancy) and no support for H3b and H3d.

Table 5 shows that the total effect of transportation on the intention to discuss safer sex with friends was significant, as was the direct effect of transportation on intention. No indirect effects were found via self-efficacy, counterarguing or perceived vulnerability for STIs and pregnancy. Thus, we found support for H4a, and no support for H4b, H4c and H4d.

Discussion

In this study, we tested the effectiveness of a narrative in motivating college students to discuss safer sex, both with their sexual partner and with their friends. Furthermore, we were interested in the mechanisms of narrative processing underlying this effectiveness. We expected that our narrative might increase the students' tendency to discuss safer sex with a partner and with friends through identification with the characters, transportation into the narrative and the provision of role models as well as of a social script. The results show that compared to the pre-test scores, participants indeed had a slightly higher intention to talk about safer sex with a partner (marginally significant) and with friends (significant) after being presented with the narrative. Thus, the effect of the narrative intervention on the intentions to talk about safer sex was in the intended direction, even though the effect was relatively small.

We also looked into the processes of narrative persuasion, that is, the extent to which we can predict safer sex communication intentions from the levels of identification and transportation. We found significant total effects of identification and transportation on safer sex communication

intentions with a partner and with friends. This indicates that identification and transportation are, as expected, predictors of safer sex communication intentions. In most cases, this relationship was found to be direct, and only in some cases was this relationship indirect, mediated by self-efficacy or perceived vulnerability for pregnancy caused by unsafe sex. This suggests that the effectiveness of narratives may be boosted by increasing involvement, either with the story as a whole (transportation) or with one of the main characters (identification).

Contrary to our expectation, we did not find that the effect of the narrative was in any way different from the effect of the brochure on safer sex communication intention. This result gives rise to doubts about the supposed superiority (e.g. Moyer-Gusé et al., 2011) of the narrative format. In the narrative condition, narrative processes, that is, transportation and identification, can be active. In the non-narrative condition, there are no characters with whom to identify, but some form of transportation may still be evoked. Indeed, Braverman (2008) and Dunlop et al. (2010) found that transportation can also be elicited by non-narrative messages, as opposed to merely by messages with a narrative structure. When processing a non-narrative message, one might still be able to create a vivid mental representation of a situation that relates to himself or herself, or to, for example, a friend or family member, and thus still be transported into the message. Rather than being evoked by the features of a narrative message, then, the experience of transportation may be a function of individual message reception (see Mar and Oatley, 2008). The non-narrative brochure in our study might also have evoked some measure of transportation, possibly adding to its persuasiveness. Future studies should focus on the mechanisms that are active when processing non-narrative messages, and whether these mechanisms work in a similar way as the narrative processes that were measured in the present study.

Given the fact that the narrative that was used in this study was a video-clip, and the non-narrative message was a plain paper document, the lack of a difference in effect between the narrative and the non-narrative is remarkable. Even though a review study by De Graaf et al. (2016) concluded that the narrative medium is not likely to influence persuasive effects, there might be a difference in 'uptake' between the two message formats in a more natural setting where there is no forced exposure. Future research could explore whether the intended audience would prefer a narrative over a non-narrative when given the choice in a natural setting.

Limitations

Some limitations to the present study should be noted. First of all, we found that our results differed from the findings of Moyer-Gusé et al. (2011), who found that their narrative intervention did not immediately increase the intentions for safer sex communication. In Moyer-Gusé et al.'s follow-up questionnaire 2 weeks later in which *actual* behaviour was measured, however, participants in the narrative condition indicated they did have more sexual health discussions than participants in the other conditions. In our study, we did not have the opportunity to ask participants about their actual safer sex communication after the intervention. If we had, perhaps we would have found a similar, delayed, effect. Future studies should focus on the long-term effect of safer sex communication interventions on actual safer sex behaviour and actual safer sex communication.

Furthermore, in our study, we did not ask participants about their sexual preferences. Scores on safer sex communication behaviour and related variables, such as perceived vulnerability for unsafe sex leading to pregnancy, may be different for same-sex couples than for heterosexual couples. Even though the general message of the intervention is clear ('don't be afraid to bring up the topic of safer sex at any sexual encounter'), it would seem a good idea to take sexual preference into account in future studies.

Conclusion

In this study, we investigated the effects of a narrative intervention on safer sex communication intentions with a sexual partner and with friends, and we investigated the mechanisms of narrative processing underlying these effects. Our findings indicate a positive effect of the narrative intervention compared to pre-test scores, and a positive relationship between narrative processes and the intention to discuss safer sex with a sexual partner and with friends. We found no advantage of the narrative compared to a non-narrative message in brochure format. Future research should focus on increasing the target audience's involvement with the story, hence boosting transportation and identification. Furthermore, future research should focus on mechanisms that increase the effectiveness of both narrative and non-narrative messages. In this way, research on safer sex communication can contribute to developing campaigns that will successfully spark open and effective communication about safer sex within vulnerable groups.

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Notes

1. Hofman et al. (2013), for instance, found that including pre-test measurements before exposure to a leaflet on the human papillomavirus (HPV) virus increased knowledge on HPV compared to not including pre-test measurements. In other words, the pre-test questionnaire, and not merely the stimulus materials, may influence the post-test results. In our study, this would be the case if the results from the post-tests in both conditions were significantly different (see 'Results' section).
2. A translation of the text of the non-narrative message can be found in Appendix 1 of the first author's Open Science Framework account (direct link: osf.io/ke9h9).
3. We realise that the mediation analyses discussed in this section do not provide information on causality. However, following the terminology of Hayes (2013), we will speak of *effects* in this section.
4. When analysing the effect of self-efficacy, we only used the self-efficacy item that was relevant for the behaviour type we were interested in (e.g. the item 'I am capable of bringing up condom use with a sexual partner' for discussing safer sex with a partner).
5. A visual depiction of the relationships investigated in this section and a correlation matrix for the variables discussed in this section can be found respectively in Appendix 2 and Appendix 3 of the first author's Open Science Framework account (direct link: osf.io/ke9h9).
6. If the 95% confidence interval includes zero, then the effect will not be significant at the .05 level. If the 95% confidence interval does not include zero, then the effect will be significant at the .05 level.

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